

## CLAIMS

1. An apparatus for the correction of wall chest deformities such as "Pectus Carinatum", comprising a bar having a flattened cross-section, capable of being appropriately curved, having a minimum bending strength according to the values defined by ASTM F382-95, having two opposing ends associated to respective fixing plates provided in the medium portion of a receiving slot of the corresponding bar end and peripheral holes securing the bone parts of the costal arcs, wherein said bar and said fixing plates have substantially the same thickness, the bar end portions have the reduced thickness for respective planar grooves which consistently with the respective longitudinal axes have a plurality of regularly separated passing holes aligned therewith; and the fixing plates, being substantially rectangular, have in the respective slots cooperative attaching elements matching two consecutive holes on the tapered portion of the corresponding bar end, the wall thickness of each bar end portion and the wall thickness in the slot region of each plate having the same height, and said bar end portions and the respective plates being linked by threaded elements, forming removable and axially registrable attachments.

2. An apparatus for the correction of chest wall deformities such as "Pectus Carinatum", according to claim 1, wherein said threaded elements are screws and said attaching elements of the slots are threaded holes aligned with the longitudinal axis of the greater wall forming said slot.

3. An apparatus for the correction of chest wall deformities such as "Pectus Carinatum", according to claim 1, wherein the attachment elements between each plate and the tapered portion of the corresponding bar end are substantially cylindrical projections aligned with the longitudinal axis of the wall forming the slot and are fittingly and selectively related to two consecutive holes of the tapered portion of the corresponding bar end, and the threaded elements comprising at least two screws that are applied to respective threaded holes formed in the plate portions adjacent to the slot edges, said screws having head contours overlapping the greater edges of the tapered portion of the corresponding bar end.

4. A method for the correction of "Pectus Carinatum" using the apparatus according to any of the preceding claims, comprising the steps of:

i) making two small incisions in the chest axillary lateral region at the maximum proceeding;

- ii) shaping a pre-sternum tunnel just above the maximum proceeding;
- iii) inserting the previously shaped, curved bar so that the concave face of said bar shall compress appropriately the chest deformity;
- iv) applying two fixing plates to the costal planes in perpendicular position between the longitudinal axes of said plates and the bar, and securing both plates pericostally;
- v) externally compressing the sternum body until the appropriate chest contour is shaped;
- vi) mounting the tapered portions of the bar ends on the slots of the respective plates; and
- vii) securing with screws said bar end portions and said plates.

5. A method for the correction of "Pectus Carinatum" according to claim 4, wherein the bar fixing plates are secured by pericostally inserting steel wire stitches in the bone parts of the superior and inferior costal arcs.

6. A method for the correction of "Pectus Carinatum" according to claim 4, wherein the bar fixing plates are secured by pericostally inserting steel wire stitches in the bone parts of the superior and inferior costal arcs in the posterior axillary region.

7. A method for the correction of "Pectus Carinatum" according to any of claims 4 to 6, wherein a plurality of movements are accessorially made allowing to reshape the anatomic contour.

8. A method for the correction of "Pectus Carinatum" according to claim 7, wherein the reshaping of the anatomic contour comprises making percutaneous ostectomies in the costal arcs and/or in the curved portion of the sternum bone.

9. A method for the correction of "Pectus Carinatum" according to any of claims 4 to 8, wherein once the correction of the chest wall deformity is achieved, the method further comprises the steps of: viii) opening the lateral incisions; ix) cutting and removing the wires surrounding the costal arcs; x) unscrewing the securing screws; and xi) removing the plates and the pre-sternum bar.